

**REMARKS**

Claims 1, 11-14 and 18-19 have been amended. Claims 1, 11-14, 18 and 19 remain for further consideration. No new matter has been added.

The objections and rejections shall be taken up in the order presented in the Official Action.

2. Claims 1, 11-14, 18 and 19 currently stand objected to for informalities.

Claims 1, 11-14, 18 and 19 have been amended. The term “where” has been amended to “wherein”.

3. The specification currently stands objected to for allegedly failing to provide proper antecedent basis for the claimed subject matter. Specifically, it is alleged that the recited feature of “axially detached” in claims 1, 11 and 18 lacks proper antecedent basis.

It is submitted that sufficient antecedent basis exists for the recited feature of “axially detached”. Claim 1 recites the feature that “*wherein the first and second gears are disposed co-axially adjacent one another on the shaft*”. Claims 11 and 18 each recite the feature that “*wherein the first and second gears are operably positioned co-axially on the shaft*”. These claim features establish the co-axial nature of the first and second gears on the shaft. Support for this claim language is in the application as filed, specifically, on page 2, lines 6-8, and page 5, lines 2-3. These claimed “co-axial” gear features are also clearly indicated in the figures as filed. Further, these same locations in the application as filed recite language that the two gears “*sitting next to one another*” **slip or turn independently of each other**. This independent motion as between the gears can only occur if the two gears are on the shaft detached from each other. In addition, the application as filed

on page 4, lines 14-16 discloses that “*FIG. 1 illustrates a gear arrangement 10 that includes a first gear 12 and a second gear 14. The first gear 12 is arranged immediately adjacent to the second gear. The first gear 12 is preferably made of plastic, while the second gear 14 is made of metal*”.

The clear inference from this disclosure of “first” and “second” gears, made of different materials, is that two separate or “detached” gears 12, 14 are disclosed in the specification as filed.

4. Claims 1, 11-14, 18 and 19 currently stand rejected for allegedly being anticipated by Japanese Patent Publication No. 59117951 to Shinichi (hereinafter “Shinichi”).

#### **Claim 1**

Claim 1 recites a gear arrangement operably arranged with a rotatable shaft. The gear arrangement includes:

“a first gear made of a first material and a second gear made of a second material different than the first material, wherein the first and second gears are disposed co-axially adjacent one another on the shaft, wherein the elasticity of the first gear is greater than that of the second gear, wherein the strength of the second gear is greater than that of the first gear, and wherein the first gear and the second gear are arranged on the shaft axially detached from each other such that the first and second gears rotate in the same direction relative to the shaft and independently of each other.” (emphasis added, cl. 1).

Shinichi is incapable of anticipating claim 1. Specifically, upon a fair and proper reading, Shinichi fails to disclose the claimed feature of “*wherein the first gear and the second gear are arranged on the shaft axially detached from each other*”. (cl. 1, emphasis added). This feature recites structure and not function. Shinichi instead explicitly discloses that the gears 12, 13 are prepared “as an integral unit.” (See the “Constitution” paragraph of the Abstract; emphasis added). Shinichi also discloses that the gears 12, 13 are combined “so as to integrally use the gears as one gear.” (See the “Purpose” paragraph of the Abstract; emphasis added). Further, Shinichi discloses that “gear (13)

made of an elastic material with a larger tooth thickness than that of gear (12) is integrated with said gear (12) to form a gear." (See page 2 of the full translation of Shinichi, the "Application examples" section, first paragraph). Thus, Shinichi explicitly states that the two gears 12, 13 are integrated to form a single gear. As a result, Shinichi does not teach or suggest that the two gears 12, 13 are arranged on the shaft axially detached from each other, as in the present claimed invention. A 35 U.S.C. §102 rejection requires that a single reference disclose each feature of the claimed invention. Thus, for at least the reasons set forth above, Shinichi is incapable of anticipating claim 1.

### **Response to Arguments in the Official Action**

In the most recent Official Action dated April 24, 2007, the Examiner responded to applicant's arguments directed towards claim 1 in the Amendment filed April 3, 2007 in response to the prior Official Action of December 11, 2006. Applicant now responds to the Examiner's arguments in the most recent Official Action in the order in which those arguments were presented in that Official Action.

The Official Action contends that "*Applicant argues: 'Shinichi is incapable of anticipating amended claim 1. Specifically, upon a fair and proper reading, Shinichi fails to disclose the claimed feature of 'where the first gear and the second gear are arranged on the shaft axially detached from each other.'* *In response, Shinichi discloses a first gear (13) and a second gear (12) arranged on the shaft axially detached from each other (see figures 3 and 4).*" (emphasis added; Official Action, pg. 5). However, this argument fails because FIG. 3 of Shinichi illustrates only a small portion of each of the three gears 11, 12, 13, and also fails to show any portion of a shaft. One cannot reasonably ascertain from the very limited information imparted by FIG. 3 whether the first gear 13

and the second gear 12 are axially detached from each other, as contended in the Official Action. Thus, FIG. 3 is inconclusive evidence of, and thus cannot support the conclusion that the gears 12, 13 are arranged on the shaft axially detached from each other. Also, FIG. 4 of Shinichi clearly illustrates the gears 12 and 13 as a single unit, which is separate from the gear 11. That is, FIG. 4 (in particular, FIGs. 4a, 4c and 4d) clearly illustrate the gear 11 meshing with the integral gears 12, 13. Thus, the gear 11 is clearly axially detached from the gears 12, 13, but the gears 12, 13 are not illustrated in FIG. 4 as being axially detached from each other.

The Official Action further contends that “*Applicant further argues ‘Shinichi instead explicitly discloses that the gears 12, 13 are prepared ‘as an integral unit.’ (See the ‘Constitution’ paragraph of the Abstract; emphasis added). Shinichi also discloses that the gears 12, 13 are combined ‘so as to integrally use the gears as one gear.’ (See the ‘Purpose’ paragraph of the Abstract; emphasis added). Further, Shinichi discloses that ‘gear (13) made of an elastic material with a larger tooth thickness than that of gear (12) is integrated with said gear (12) to form a gear.’ (See page 2 of the full translation of Shinichi, the ‘Application examples’ section, first paragraph).*

*Thus, Shinichi clearly teaches that the two gears 12, 13 are integrated to form a single gear or unit. Thus, Shinichi does not teach or suggest that the two gears 12, 13 are arranged on the shaft axially detached from each other, as in the present claimed invention.”* (Official Action, pg. 5). The individual arguments of the Examiner in response which followed in the Official Action are set out as follows, together with a response to each by applicant:

- “*In response, the fact that the two admitted gears (12 and 13) are ‘integrally [used] as one gear’ does not prove that the gears are not ‘axially detached’ as claimed. Webster’s II New Riverside Dictionary defines detached as: separate.*” (Official Action, pg. 6). However, this argument fails because something cannot be “integral” and “separate” or “detached” at the

same time. The Merriam-Webster Online Dictionary defines “integral” are “formed as a unit with another part” or “composed of integral parts”. That same dictionary defines “separate” as “set or kept apart: detached”. Thus, the two gears 12, 13 cannot be “formed as a unit” (i.e., single gear as taught by Shinichi) and also be “set apart” or “detached” at the same time – they are the opposite physical structural conditions. In addition, the additional language in Shinichi noted above that “the gears are combined” and that the gears “are prepared as an integral unit” further strengthens the argument that the language where the gears “are integrally used as one gear” proves that the gears are indeed detached from each other.

- “*Clearly the two admitted gears are separate as they are given separate reference characters and discussed separately.*” (Official Action, pg. 6). However, assigning the gears 12, 13 separate reference characters and discussing them separately does not lead to the conclusion that the two gears 12, 13 must be physically detached from each other. Assigning separate reference numbers to the gears 12, 13 and discussing them separately only serves to assist one reading the patent in better understanding the characteristics of each gear 12, 13. The presence of other language in Shinichi noted above controls the physical relationship of the gears 12, 13; that is, where Shinichi explicitly discloses that the gears 12, 13 are prepared “as an integral unit”; where Shinichi discloses that the gears 12, 13 are combined “so as to integrally use the gears as one gear”; and where Shinichi discloses that “gear (13) made of an elastic material with a larger tooth thickness than that of gear (12) is integrated with said gear (12) to form a gear.”
- “*Furthermore, the gears function separately as recited in the constitution: ‘When the gears 11, 12 are meshed, the gear 13 engages with the gear 11 always earlier before the gear 12 engages with the gear 11 by a distance of the larger thickness and rotates always in close*

*contact’.* *The mere fact that the two gears function together does not show that the two gears are not axially detached.”* (Official Action, pg. 6). However, the cited portion of Shinichi above discloses the function of the gears 11, 12, 13 and not the structure of these gears. This functional language is at best inconclusive as to the structure and certainly does not prove that the two 12, 13 gears are not axially detached from each other. Again, Shinichi contains other language noted above that clearly disclose the structural relationship between the gears 12, 13 such that they are a single gear.

- “*Furthermore, Shinichi’s figure 4 shows a distinct separation, illustrating that the gears are axially detached.”* (Official Action, pg. 6). However, a close inspection of FIG. 4 of Shinichi, in particular FIGs. 4a, 4c and 4d, fails to reveal the “distinct separation” (or any separation between the gears 12, 13 for that matter) that is being contended in the Official Action. The text of Shinichi discloses the opposite: “*together with each conventional gear having rigidity, a gear made of an elastic material is set side-by-side.”* (See pages 1-2 of the full translation of Shinichi, the “Industrial application field” section, first paragraph). Also, “*since gear (13) has a larger tooth thickness, as gears (11), (12) are engaged, it comes in close contact and rotates before gear (12) is engaged with gear (11).”* (See pages 2-3 of the full translation of Shinichi, the “Application examples” section, first paragraph). Thus, the text of Shinichi explicitly discloses that the gears 12, 13 are in close contact with each other, thereby negating any argument that there exists a “distinct separation” between the gears 12, 13.
- “*Furthermore, applicant’s figures 1-3 show gears immediately adjacent, just as Shinichi’s figure 4 shows the two admitted gears immediately adjacent.”* (Official Action, pg. 6). However, the fact that both the present application and Shinichi discloses that the respective

gears are “immediately adjacent” does not necessarily mean that the gears of both documents must be the same – that is, detached from each other. As noted above, Shinichi explicitly discloses that the gears 12, 13 are formed as one gear. In contrast, the present claimed invention recites that the two gears are arranged on the shaft axially detached from each other. These are two very different physical structures.

- *“Furthermore, applicant’s invention functions in the exact same way as described in the abstract: ‘...only the first gear (1), while having the same modulus, comes into engagement with another gear in normal operation. As the load increases, the first gear (1) made of plastic yields in the elastic range so that now the second gear (2) made of metal also comes into engagement in order to accept the forces occurring...’.”* (Official Action, pg. 6).

However, this argument fails because it is comparing the function of the gears of the present application and the function of the gears in Shinichi, rather than comparing the structure of the claimed invention to the structure of Shinichi. Just because the function of the present claimed invention is alleged to be similar to that of Shinichi does not necessarily mean that the corresponding structures are identical. Whether the gears are detached from each other or integrated together is irrelevant to the achievement of the specific function of the plastic gear yielding in the presence of sufficient forces.

The Official Action also contends that *“Applicant further argues ‘However, the conclusion that the gears 12, 13 rotate independently of each other is incorrect. This is because the cited portion of the Abstract above is not taken in proper context as it fails to cite the entire sentence, which states that ‘[w]hen the gears 11, 12 are meshed, the gear 13 engages with the gear 11 always earlier before the gear 12 engages with the gear 11 by a distance of the larger thickness and rotates’”*

always in close contact, eliminating a rapid change of transmission torque without backlash of the gear in its engagement, thus smooth transmission is capable.’ In response, the fact that the two gears are ‘in close contact’ does not prove the gears are not axially detached. The gears can be in close contact and still be separate or ‘detached’ as claimed. In fact, applicant’s figures 1-3 also show the claimed two gears in close contact.” (emphasis added; Official Action, pg. 7). Again, as discussed above, Shinichi explicitly discloses that the gears 12, 13 are prepared “as an integral unit.” (See the “Constitution” paragraph of the Abstract; emphasis added). Shinichi also discloses that the gears 12, 13 are combined “so as to integrally use the gears as one gear.” (See the “Purpose” paragraph of the Abstract; emphasis added). Further, Shinichi discloses that “gear (13) made of an elastic material with a larger tooth thickness than that of gear (12) is integrated with said gear (12 to form a gear.” (See page 2 of the full translation of Shinichi, the “Application examples” section, first paragraph). Thus, Shinichi explicitly states that the two gears 12, 13 are integrated to form a single gear. The language that the gears are in “close contact” is consistent with the “single gear” disclosure in Shinichi.

As a result, it is respectfully submitted that the anticipation rejection of claim 1 is moot and should be removed, and that claim 1 is in condition for allowance and should be passed to issuance.

### **Claim 11**

Since claim 11 currently stands rejected for the same reasons as claim 1, the arguments above with respect to the patentability of claim 1 are applicable to the patentability of claim 11. As a result, it is respectfully submitted that the anticipation rejection of claim 11 is moot and should be removed, and that claim 11 is in condition for allowance and should be passed to issuance.

**Claim 18**

Since claim 18 currently stands rejected for the same reasons as claim 1, the arguments above with respect to the patentability of claim 1 are applicable to the patentability of claim 18. As a result, it is respectfully submitted that the anticipation rejection of claim 18 is moot and should be removed, and that claim 18 is in condition for allowance and should be passed to issuance.

For all the foregoing reasons, reconsideration and allowance of claims 1, 11-14, 18 and 19 is respectfully requested.

If a telephone interview could assist in the prosecution of this application, please call the undersigned attorney.

Respectfully submitted,

  
Patrick J. O'Shea  
Patrick J. O'Shea  
Reg. No. 35,305  
O'Shea, Getz & Kosakowski, P.C.  
1500 Main Street, Suite 912  
Springfield, MA 01115  
(413) 731-3100, Ext. 102